

Restoration and Upgrade of Kodiak Fish Passes and Weirs	FY2003 Request:	\$150,000
	Reference No:	35839

AP/AL: Appropriation Category: Natural Resources Location: Kodiak Election District: Kodiak Estimated Project Dates: 07/01/2002 - 06/30/2007	Project Type: Renovation and Remodeling Contact: Doug Mecum Contact Phone: (907)465-4210
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Brief Summary and Statement of Need:

This project would serve to restore and repair a number of fish pass facilities around Kodiak and Afognak Island, some of which have aided the annual migration of hundreds of thousands of salmon to otherwise inaccessible spawning habitat for forty years. These facilities are deteriorating due to corrosion of metal and erosion of concrete structures. Replacement of Denil-type fish passes, excavation of debris from concrete structures, replacement of fish ladder covers, patching of concrete resting pools and containment structures, installation of water diversion structures, and rehabilitation of associated weirs would occur at various locations.

Funding:

	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	Total
Gen Fund	\$150,000						\$150,000
Total:	\$150,000	\$0	\$0	\$0	\$0	\$0	\$150,000

<input type="checkbox"/> State Match Required	<input checked="" type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased Project	<input type="checkbox"/> On-Going Project
0% = Minimum State Match % Required	<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Total Operating Impact:	0	0
One-Time Startup Costs:	0	
Additional Estimated Annual O&M:	0	0

Prior Funding History / Additional Information:

None

Perenosa/Frazer Fish Passes : Fish passes are used at a number of systems on Kodiak Island to allow Pacific salmon access to otherwise unavailable spawning habitat. Most of these fish pass projects were initiated forty years ago and have continued due to their success in enhancing and rehabilitating salmon returns to Kodiak Island. Some of the structures have suffered substantial deterioration, however, due to metal corrosion and erosion of concrete. Without maintenance these structures will continue to deteriorate, ultimately resulting in a loss of salmon access to spawning habitat.

The most upstream section of the 31.9 meter (m) fish pass at Little Waterfall Creek was constructed of concrete and fashioned with wooden covers and baffles. Harsh winter flows have washed debris and rocks into the fish pass, forcing the rotten wooden covers off the rusted anchors and destroying the inside wooden baffles. Without covers, the top of the fish pass remains exposed allowing migrating salmon to prematurely jump out and be swept down the 7.9 m waterfall. We propose excavating the inside of the original concrete fish pass and installing a new aluminum Denil-type fish pass inside the original structure. In addition, the staging area downstream of the upper fish pass is made of sandbags and is susceptible to strong currents and bear damage. A permanent concrete staging area would be constructed at the base of the fish pass. Finally, due to low water events within Little Waterfall Creek, water diversion structures must be installed to keep proper flows through the fish passes. Over the course of seasonal flooding the existing pipe-supported structures have been destroyed. The proposed replacement involves the use of a supporting sleeve to be recessed and flush mounted into the rock substrate. Rods, permanently attached to the diversionary board, when placed into the supporting sleeves, will support the entire device for the duration of the migration season.

Water diversion structures are also installed to keep the proper flows through various fish passes in the Pauls Lake (Pauls/Laura/Gretchen) system and along Portage Creek, also within the Perenosa Bay area. We propose constructing and installing improved diversion devices as described above for Little Waterfall Creek.

The Frazer Lake fish pass facility, near the south end of Kodiak Island, consists of fish passes and a diversion weir, the latter to prevent fish approaching the fish pass from attempting to navigate the barrier falls. The original fish pass covers were made of wood, and many of them are now missing or broken. The missing fish pass covers are problematic because migrating fish can fall out of the fish pass, and it also poses a hazard to field crew that occasionally walk up the fish pass. At the upstream end of the fish pass, where fish exit the structure, part of the concrete has been eroding, deteriorating more every year and must be repaired soon. The diversion weir would be repaired by drilling out the existing bolts, cleaning out the gravel, and installing new angle iron. Additionally, the old fish pass covers would be replaced with aluminum covers and eroding concrete at the fish pass exit would be repaired with high-strength quick-set concrete.

Laura Creek Staging Pool: The first upstream staging pool in the Pauls/Laura/Gretchen system, which was constructed in 1952, has deteriorated to the point that temporary repairs are not sufficient to keep it operational. This pool is essential to enable migrating salmon access to upstream habitat. We propose to build a new pool using standard concrete construction techniques (forms, rebar reinforcement, and concrete).

Kodiak Weir Materials: The primary basis of inseason management for Kodiak sockeye and chinook salmon is a complex of seventeen salmon enumeration weirs. Several of these systems, such as the Karluk, Ayakulik, Dog Salmon and Afognak rivers, are responsible for most of the sockeye salmon and all of the chinook salmon production in the Kodiak archipelago. One of the largest expenses incurred for weir projects is the continual replacement of lumber due to aging in response to exposure to the elements. Not only is the cost of replacing the lumber substantial, but the frequent transport of these materials to remote weir sites is a recurring and substantial expense.

The replacement of existing wooden tripods and stringers used in current weirs would be accomplished with two types of structures: 1) aluminum tripod weirs and 2) PVC-pipe floating weirs. The aluminum weirs would consist of aluminum tripods, stringers and picket panels similar in design to the current wooden structures; consideration will also be given to an alternate method utilizing metal rails on the stream bottom supporting picket panels. The second design, following successful attempts in other areas of the state, would be a "floating" weir constructed of PVC-pipe pickets that effectively adjust to fluctuating water levels; this design would be specifically tested at the Ayakulik River.

This project, while not providing for sufficient materials to replace all the existing weirs in the Kodiak Management Area, would allow for replacement of those in worst repair and for testing of the floating weir design in local waters.

Communication (satellite telephone) Upgrade for Weir Camps: Single Side Band (HF) radios are currently used for communication between ADF&G biologists in Kodiak and many remote field projects. Solar activity, atmospheric conditions, or electronic interference often cause poor reception, limiting communications. Recent improvements in satellite telephone systems and reductions in system costs allow this technology to be a feasible alternative. Currently, four remote field

projects and two research vessels utilize this technology, proving the viability of this technology as a communication option. Also, system prices are now less than the replacement cost of SSB radios. Further advantages include increased safety (the satellite systems are able to dial an emergency number at any time, while SSB radio communication only works if someone is listening at the other end), privacy (these are digitally encoded signals; it is not possible for someone else to intercept and unscramble the signal), and the ability to transmit data.

Remote Field Station Repairs/Maintenance: Remote field stations at Ayakulik and Afognak Rivers are located on Native Corporation lands and long-term lease arrangements have been made for fisheries management and research. Crews spend up to 4 months on site. We propose dedicating funds to repair and conduct needed maintenance on the cabins used for housing the crews.